

BIOCHEMICAL AND BIOPHYSICAL Research Communications

EDITORS

John N. Abelson
Ernesto Carafoli
I.C. Gunsalus
Akira Ichihara

James D. Jamieson
Yasuo Kagawa
M. Daniel Lane

William J. Lennarz
Masami Muramatsu
Claude Paoletti
Bennett M. Shapiro

Volume 190 • 1993



ACADEMIC PRESS, INC.

Harcourt Brace Jovanovich, Publishers

San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1993 by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1993 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0006-291X/93 \$4.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.



BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS

CONTENTS

Volume 190, Number 1, January 15, 1993

Cloning of a Functional cDNA for Human Cytidine Deaminase (CDD) and Its Use as a Marker of Monocyte/Macrophage Differentiation	Klaus Kühn, Wolf M. Bertling, and Frank Emmrich	1
Evolution of the <i>ets</i> Gene Family	Vincent Laudet, Christian Niel, Martine Duterque-Coquillaud, Dominique Leprince, and Dominique Stehelin	8
HepG2 Cells: An <i>in Vitro</i> Model for P450-Dependent Metabolism of Acetaminophen	Amy L. Roe, John E. Snawder, R. Wayne Benson, Dean W. Roberts, and Daniel A. Casciano	15
The Disulfide Bond Arrangement of Leukemia Inhibitory Factor: Homology to Oncostatin M and Structural Implications	Nicos A. Nicola, Bronwyn Cross, and Richard J. Simpson	20
Angiotensin II Receptors in Rabbit Vascular Grafts	Elizabeth A. Hausner, M. James Turner, James M. Trzaskos, and William F. Herblin	27
Calcium-Independent Activation of Protein Kinase C by the Dianionic Form of Phosphatidic Acid	G. A. Senisterra, L. C. M. van Gorkom, and R. M. Epand	33
The Calmodulin Antagonist W-7 Depletes Intracellular Calcium Stores in FRTL-5 Thyroid Cells	Kid Törnquist	37
Human α -1,3-Fucosyltransferase (FucT-VI) Gene Is Located at Only 13 Kb 3' to the Lewis-Type Fucosyltransferase (FucT-III) Gene on Chromosome 19	Shoko Nishihara, Mariko Nakazato, Takashi Kudo, Hirohisa Kimura, Takao Ando, and Hisashi Narimatsu	42
Calyculin A, a Potent Inhibitor of Phosphatases-1 and -2A, Prevents Apoptosis	Qizhong Song and Martin F. Lavin	47
An Explanation for the Disparate Effects of Synthetic Peptides Corresponding to Human Follicle-Stimulating Hormone β -Subunit Receptor Binding Regions (33-35) and (81-95) and Their Serine Analogs on Steroidogenesis in Cultured Rat Sertoli Cells	Patricia Grasso, John W. Crabb, and Leo E. Reichert, Jr.	56
D-Erythro-sphingosine Lowers 3-Hydroxy-3-methylglutaryl Coenzyme A Reductase Activity in Chinese Hamster Ovary Cells	Frederick D. Pinkerton, Alemlka Kusic, William K. Wilson, and George J. Schroepfer, Jr.	63
Prior Arterial Injury Enhances Luciferase Expression Following <i>in Vivo</i> Gene Transfer	R. Wayne Barbee, Dwight D. Stapleton, Bret D. Perry, Richard N. Ré, Joseph P. Murgo, Vernon A. Valentino, and Julia L. Cook	70
Resistance to Tetracycline, a Hydrophilic Antibiotic, Is Mediated by P-Glycoprotein in Human Multidrug-Resistant Cells	Maria Kavallaris, Janice Madafiglio, Murray D. Norris, and Michelle Haber	79
Effect of H ₁ Histone Isoforms on the Methylation of Single- or Double-Stranded DNA	Raffaella Santoro, Maria D'Erme, Anna Reale, Roberto Strom, and Paola Caiafa	86
Effect of Epidermal Growth Factor on Cholecystokinin-Induced Amylase Release and Inositol 1,4,5-Trisphosphate Production in Pancreatic Acinar Cells	Danuta Stryjek-Kaminska, Albrecht Piiper, Wolfgang F. Caspary, and Stefan Zeuzem	92

Genetic Exclusion of apo-B Gene in Recessive Abetalipoproteinemia	
<i>M. Pessah, I. Beucler, N. Loux, J. Navarro, X. Guillerd, O. Dulac, J. Lequeux, C. Junien, and R. Infante</i>	97
Rat CINC (Cytokine-Induced Neutrophil Chemoattractant) Is the Homolog of the Human GRO Proteins but Is Encoded by a Single Gene	
<i>John Zagorski and Joseph E. DeLarco</i>	104
Properties of an Xeroderma Pigmentosum Revertant Cell Line Expressing Endonuclease V	
<i>Anthony P. Green, Jon K. deRiel, and Earl Henderson</i>	111
β_3 Integrin-Derived Peptide 217-230 Inhibits Fibrinogen Binding and Platelet Aggregation: Significance of RGD Sequences and Fibrinogen A α -Chain	
<i>Elizabeth C. Lasz, Mary Ann McLane, Maciej Trybulec, Maria Anna Kowalska, Shabbir Khan, Andrei Z. Budzynski, and Stefan Niewiarowski</i>	118
Heparin-Binding EGF-like Growth Factor: Characterization of Rat and Mouse cDNA Clones, Protein Domain Conservation across Species, and Transcript Expression in Tissues	
<i>Judith A. Abraham, Deborah Damm, Adrianna Bajardi, Judy Miller, Michael Klagsbrun, and R. Alan B. Ezekowitz</i>	125
Nucleotide Sequence of a <i>Dictyostelium discoideum</i> Gene Encoding a Protein Homologous to the Yeast Ribosomal Protein S31	
<i>Ursula Hoja, Jörg Hofmann, Rolf Marschalek, and Theo Dingermann</i>	134
Expression of an N-Terminally Truncated Form of Human Focal Adhesion Kinase in Brain	
<i>Elisabeth André and Michael Becker-André</i>	140
Induction of Apoptosis by Hemorrhagic Snake Venom in Vascular Endothelial Cells	
<i>Satohiko Araki, Takayuki Ishida, Tatsunori Yamamoto, Kazuhiko Kaji, and Hiroshi Hayashi</i>	148
Interleukin 1 Receptor on Fibroblasts from Systemic Sclerosis Patients Induces Excessive Functional Responses to Interleukin 1 β	
<i>Yasushi Kawaguchi, Masayoshi Harigai, Kimihiro Suzuki, Masako Hara, Ken Kobayashi, Toshiaki Ishizuka, Yasunori Matsuki, Nobuhiko Tanaka, and Haruo Nakamura</i>	154
Evidence for the Presence of Specific High Affinity Cytosolic Binding Sites for Platelet-Activating Factor in Human Neutrophils	
<i>Stanislav Svetlov and Santosh Nigam</i>	162
F ₁ F ₀ -ATPase Subunit e Gene Isolated in a Screen for Diet-Regulated Genes	
<i>Timothy S. Elliott, Deborah A. Swartz, Elizabeth A. Paisley, Heather J. Mangian, Willard J. Visek, and Jim Kaput</i>	167
Cloning of a cDNA Encoding Rat Intestinal 15-kDa Protein and Its Tissue Distribution	
<i>Hiroshi Fujii, Michiyo Nomura, Tatsuo Kanda, Osamu Amano, Shoichi Iseki, Katsuyoshi Hatakeyama, and Teruo Ono</i>	175
Biphasic Generation of Diacylglycerol by Angiotensin and Phorbol Ester in Bovine Adrenal Chromaffin Cells	
<i>R. K. Tuominen, M. H. Werner, H. Ye, M. K. McMillian, P. M. Hudson, Y. A. Hannun, and J. S. Hong</i>	181
Nuclear Translocation of Aflatoxin B ₁ -Protein Complex	
<i>John J. Ch'ih, Joseph I. Ewaskiewicz, Pamela Taggart, and Thomas M. Devlin</i>	186
Molecular Cloning of Human Amidophosphoribosyltransferase	
<i>Hiroyuki Iwahana, Jun Oka, Noriko Mizusawa, Eiji Kudo, Setsuko Ii, Katsuhiko Yoshimoto, Edward W. Holmes, and Mitsuo Itakura</i>	192
Quinone Analogues: A Drug of Choice for the Control of Filariasis	
<i>K. R. Santhamma and R. Kaleysa Raj</i>	201

Characterization of Human Autoantibodies Reactive to Gastric Parietal Cells <i>Xiao-Hui Wang, Yoshiji Miyazaki, Yasuhisa Shinomura, Yoshinori Moriyama, Robert K. Nakamoto, Yuji Matsuzawa, Masatomo Maeda, and Masamitsu Futai</i>	207
A Proteoglycan Form of Macrophage Colony-Stimulating Factor That Binds to Bone-Derived Collagens and Can Be Extracted from Bone Matrix <i>Tetsuya Ohtsuki, Shinya Suzu, Kiyohiko Hatake, Naokazu Nagata, Yasusada Miura, and Kazuo Motoyoshi</i>	215
Heat Treatment of Nuclear Extract Alters Selection of the 3' Splice Site in Pre-mRNA Splicing <i>Naoyuki Kataoka, Shinobu Hashimoto, and Yoshiro Shimura</i>	223
Modulation of Guanine Triphosphate Nucleotide Binding to p21 ^{ras} Immunoprecipitates of Rat Liver Plasma Membranes by Agents Affecting Redox State <i>Francis E. Wilkinson, Mark Paulik, and D. James Morré</i>	229
Protein Kinase C Phosphorylates Ser ¹⁵² , Ser ¹⁵⁶ , and Ser ¹⁶³ but Not Ser ¹⁶⁰ of Marcks in Rat Brain <i>Frank M. J. Heemskerk, Hao-Chia Chen, and Freesia L. Huang</i>	236
Rhodostomin, an RGD-Containing Peptide Expressed from a Synthetic Gene in <i>Escherichia coli</i> , Facilitates the Attachment of Human Hepatoma Cells <i>Hsin Hou Chang, Shiao-Ting Hu, Tur-Fu Huang, Shih-Hui Chen, Yan-Hwa Wu Lee, and Szecheng J. Lo</i>	242
Rational Design and Expression of a Heparin-Targeted Human Superoxide Dismutase <i>Maurice Boissinot, Leslie A. Kuhn, Pandora Lee, Cindy L. Fisher, Yi Wang, Robert A. Hallewell, and John A. Tainer</i>	250
A New and Rapid Method for Visualizing DNA Replication in Spread DNA by Immunofluorescence Detection of Incorporated 5-Iododeoxyuridine <i>N. Tomilin, Yu. Rosanov, V. Zenin, V. Bozhkov, and B. Vig</i>	257
Protein Kinase C Inhibits the Ca ²⁺ -Activated K ⁺ Channel of Cultured Porcine Coronary Artery Smooth Muscle Cells <i>Kazushi Minami, Kenji Fukuzawa, and Yutaka Nakaya</i>	263
A Novel Chicken Homeobox-Containing Gene Expressed in Neurulating Embryos <i>José Serrano, Louis Scavo, Jesse Roth, Enrique J. de la Rosa, and Flora de Pablo</i>	270
Reductive Cleavage of the Disulfide Bonds of the Collagen IV Noncollagenous Domain in Aqueous Sodium Dodecyl Sulfate: Absence of Intermolecular Non-disulfide Cross-Links <i>G. Kesava Reddy, Billy G. Hudson, Allen J. Bailey, and Milton E. Noelken</i>	277
Preparation of Anti-phosphoserine and Anti-phosphothreonine Antibodies and Their Application in the Study of Insulin- and EGF-Induced Phosphorylation <i>Shigeo Kono, Hideshi Kuzuya, Kazunori Yamada, Yasunao Yoshimasa, Motozumi Okamoto, Haruo Nishimura, Atsushi Kosaki, Gen Inoue, Tatsuya Hayashi, and Hiroo Imura</i>	283
Molecular Cloning of the Smaller Subunit (P52) of Rat Liver Mitochondrial Processing Protease <i>Sakae Kitada, Takuro Niidome, Takashi Nagano, Tadashi Ogishima, and Akio Ito</i>	289
Genomic Cloning of the Rat Histamine H ₁ Receptor <i>Katsumi Fujimoto, Yoshiyuki Horio, Kazushige Sugama, Seiji Ito, Ye Qi Liu, and Hiroyuki Fukui</i>	294
Occurrence of 2-O-Methyl-N-(3-Deoxy-L-glycero-tetronyl)-D-perosamine(4-amino-4,6-dideoxy-D-manno-pyranose) in Lipopolysaccharide from Ogawa but Not from Inaba O Forms of 01 <i>Vibrio cholerae</i> <i>Seiichi Kondo, Yasunori Isshiki, Takehiro Iguchi, and Yuji Haishima</i>	302

ERRATA

- Volume 187, Number 2, September 16, 1992: David G. Skalnik and Ellis J. Neufeld, "Sequence-Specific Binding of HMG-I(Y) to the Proximal Promoter of the gp91-phox Gene," pp. 563-569 308
- Volume 187, Number 2, September 16, 1992: Paul F. Cerpovicz and Raymond S. Ochs, "Effects of EGF on the Mass of Inositol 1,4,5-Trisphosphate and sn(1,2)-Diacylglycerol in Freshly Isolated Rat Hepatocytes: Comparison with Vasopressin," pp. 1055-1062 310

Volume 190, Number 2, January 29, 1993

- N-Linked Oligosaccharides of Simian Immunodeficiency Virus Envelope Glycoproteins Are Dispensable for the Interaction with the CD4 Receptor
Abdelaziz Benjouad, Tahar Babas, Luc Montagnier, and Elmostafa Bahraoui 311
- Immunoregulatory Functions of Paf-Acether. IX. Modulation of Apoptosis in an Immature T Cell Line
Bouchra El Azzouzi, Peter Jurgens, Jacques Benveniste, and Yolène Thomas 320
- A DNA Polymerase α -Associated 56 kDa Protein Kinase
Vickie M. Peck, Eugene W. Gerner, and Anne E. Cress 325
- Molecular Characterization of the 5'-Flanking Region of Human Genomic ET_A Gene
Heming Yang, Hisahiro Tabuchi, Yasuhiro Furuichi, and Chikara Miyamoto 332
- Antibodies to a Human α_2 -C10 Adrenergic Receptor Fusion Protein Confirm the Cytoplasmic Orientation of the V-VI Loop
Patrick Vanscheeuwijck, Yi Huang, Daniel Schullery, and John W. Regan 340
- Urokinase-Urokinase Receptor Interaction: Non-mitogenic Signal Transduction in Human Epidermal Cells
Mario Del Rosso, Enrica Anichini, Nina Pedersen, Francesco Blasi, Gabriella Fibbi, Marco Pucci, and Marco Ruggiero 347
- The Effect of Epinephrine on the Intracellular Free Calcium of Parent and Ki-ras-Transfected NIH3T3 Cells
Sára Tóth, Tao Fu, Yoshinori Nozawa, and György Csaba 353
- DNA Binding and Cleavage of a Novel Antitumor Antibiotic Dynemicin A: Detection of Binding and Cleavage Sites by Exonuclease III Digestion and Alkali-Induced Cutting Reactions
Taku Arakawa, Tetsuya Kusakabe, Jun Kuwahara, Masami Otsuka, and Yukio Sugiura 362
- Partial Nucleotide Sequence of the *Xanthomonas maltophilia* Chorionic Gonadotropin-like Receptor
Sanjeev Grover, Scott R. Woodward, Omar Caticha, Douglas T. Carrell, and William D. Odell 371
- Flexibility of the Bulge Formed between a Hairpin Ribozyme and Deoxy-substrate Analogues
Djalma Vitorino dos Santos, Jean-Louis Fourrey, and Alain Favre 377
- Generation of Hydroxyl Radical from Lipid Hydroperoxides Contained in Oxidatively Modified Low-Density Lipoprotein
Kunio Yagi, Sadaaki Komura, Naoko Ishida, Noriko Nagata, Masahiro Kohno, and Nobuko Ohishi 386

5'-RACE PCR of mRNA for Three Taxon-Specific Crystallins: For Each Gene One Promoter Controls Both Lens and Non-lens Expression	<i>Jason Hodin and Graeme Wistow</i>	391
Isolation of a cDNA for Chicken Liver 6-Phosphofructo-2-kinase/Fructose-2,6-bisphosphatase	<i>Lin Li, Alex J. Lange, and Simon J. Pilkis</i>	397
Characterization of the Promoter of Human Prostaglandin H Synthase-1 Gene	<i>Lee-Ho Wang, Asghar Hajibeigi, Xiao-Ming Xu, David Loose-Mitchell, and Kenneth K. Wu</i>	406
Two Isoforms of cGMP-Inhibited Cyclic Nucleotide Phosphodiesterases in Human Tissues Distinguished by Their Responses to Vesnarinone, a New Cardiotonic Agent	<i>Hiroshi Masuoka, Masaaki Ito, Masaki Sugioka, Hiroshi Kozeki, Tokuji Konishi, Toshio Tanaka, and Takeshi Nakano</i>	412
Vascular Pericytes Not Only Regulate Growth but Also Preserve Prostacyclin-Producing Ability and Protect against Lipid Peroxide-Induced Injury of Cocultured Endothelial Cells	<i>Sho-ichi Yamagishi, Ken-ichi Kobayashi, and Hiroshi Yamamoto</i>	418
Sulfated Glycolipids Are Ligands for a Lymphocyte Homing Receptor, L-Selectin (LECAM-1): Binding Epitope in Sulfated Sugar Chain	<i>Yasuo Suzuki, Yoshihisa Toda, Takuya Tamatani, Toshiki Watanabe, Takashi Suzuki, Toru Nakao, Katsutoshi Murase, Makoto Kiso, Akira Hasegawa, Keiko Tadano-Aritomi, Ineo Ishizuka, and Masayuki Miyasaka</i>	426
Transcriptional Attenuation of PIM-1 Gene	<i>Lalitha Nagarajan and Lakshmi Narayana</i>	435
Insulin Accelerates the Post-germinative Development of Several Fat-Storing Seeds	<i>David B. P. Goodman and Walter L. Davis</i>	440
α - and β -Adrenergic Receptor Involvement in Catecholamine-Induced Growth of Gram-Negative Bacteria	<i>Mark Lyte and Sharon Ernst</i>	447
Identification and Cloning of a New Category of DNA Fragments Which Are Poorly Represented in Human Genomic Libraries	<i>P. Wong, Y. Myal, R. Shui, and M. Tenniswood</i>	453
Identification of Multiple Repeat Sequences and Transcription-Related Elements within Introns 4, 8, and 9 of Human <i>raf-1</i>	<i>M. Jung, A. Dritschilo, G. Mark, and U. Kasid</i>	462
Protease Activity of Botulinum Neurotoxin Type E and Its Light Chain: Cleavage of Actin	<i>Bibhuti R. DasGupta and William Tepp</i>	470
Molecular Cloning, Functional Expression, and mRNA Analysis of Human β -Adrenergic Receptor Kinase 2	<i>Giustino Parruti, Grazia Ambrosini, Michele Sallese, and Antonio De Blasi</i>	475
Characterization and Expression of a Novel Human Fatty Acid-Binding Protein: The Epidermal Type (E-FABP)	<i>Georges Siegenthaler, Raymonde Hotz, Dominique Chatellard-Gruaz, Stefano Jaconi, and Jean-Hilaire Saurat</i>	482
The Role of Amino-Terminal Disulfide Bonds in the Structure and Assembly of Human Fibrinogen	<i>Shaoming Huang, Zhiyun Cao, and Earl W. Davie</i>	488
Stimulation of a G_s -like G Protein in the Osteoclast Inhibits Bone Resorption but Enhances Tartrate-Resistant Acid Phosphatase Secretion	<i>Baljit S. Moonga, Michael Pazianas, A. S. M. Towhidul Alam, Vijai S. Shankar, Christopher L-H. Huang, and Mone Zaidi</i>	496
Release of Extracellular Matrix Components by Bovine Bone Endothelial Cells in Continuous Culture	<i>C. M. Rotella, G. Galli, A. Casini, S. Bianchi, E. Mannucci, B. Cresci, D. Schuppan, A. Conti, and M. L. Brandi</i>	502

Improved Purification of Steroid 1:2-Dehydrogenase from <i>Nocardia opaca</i> and Partial Characterization of Its Cloned Gene Sequence	Katja Drobnič, Igor Križaj, Franc Gubenšek, and Radovan Komel	509
Cytosolic and Sarcoplasmic Reticulum-Associated Low K_m , cGMP-Inhibited cAMP Phosphodiesterase in Mammalian Myocardium	Carolyn J. Smith, Judith Krall, Vincent C. Manganiello, and Matthew A. Movsesian	516
Inhibition of Neuritogenic Ganglioside Biosynthesis in Chick Brain Neurons by Calcium Ionophore A23187	Abraham Rosenberg and Ernest P. Noble	522
Effect of 1,25-Dihydroxyvitamin D ₃ on the Proliferation of Osteoblastic MC3T3-E1 Cells by Modulating the Release of Local Regulators from Monocytes	Masanori Kanatani, Toshitsugu Sugimoto, Masaaki Fukase, and Kazuo Chihara	529
Expression of Biologically Active Human Factor VIII Using a Baculovirus Vector	Elizabeth Webb, Jo Tkalcevic, Stirling Edwards, Dianna Hocking, and Ian Nisbet	536
Ciliary Neurotrophic Factor Regulates Fibrinogen Gene Expression in Hepatocytes by Binding to the Interleukin-6 Receptor	James E. Nesbitt, Nelson L. Fuentes, and Gerald M. Fuller	544
High Affinity Binding of a Potassium Channel Agonist to Intact Rat Insulinoma Cells	F. J. Hoffman, Jr., J. B. Lenfers, E. Niemers, U. Pleiß, A. Scriabine, and R. A. Janis	551
Methylene Blue-Enhanced Photorelaxation in Aorta, Pulmonary Artery, and Corpus Cavernosum	Xiu Chen and C. N. Gillis	559
Cyclic Adenosine 3', 5'-Monophosphate, a Second Messenger in Interleukin-1-Mediated K562 Cytostasis	M. Neale Weitzmann and Nerina Savage	564
Inhibition of CMP-Sialic Acid Transport in Human Liver and Colorectal Cancer Cell Lines by a Sialic Acid Nucleoside Conjugate (KI-8110)	Brian E. Harvey and Peter Thomas	571
Phospholipase C: A Putative Mechanotransducer for Endothelial Cell Response to Acute Hemodynamic Changes	Colleen M. Brophy, Ira Mills, Oscar Rosales, Carlos Isales, and Bauer E. Sumpio	576
ATP Specifically Bound as a Hapten to a Monoclonal Anti-phospholipid Antibody Retains Phosphate Donor Activity	Nabila M. Wassef, Glenn M. Swartz, Barbara M. Alving, and Carl R. Alving	582
Altered Membrane-Dystrophin Association in the Cardiomyopathic Hamster Heart Muscle	Yuko Iwata, Hiroshi Nakamura, Keigi Fujiwara, and Munekazu Shigekawa	589
Toxin Sensitivity of the Calcium-Dependent Rubidium Efflux in Madin-Darby Canine Kidney Cells	Michel Tauc, Monique Gastineau, and Philippe Poujeol	596
Free Fatty Acid-Induced Alterations in the Steroid-Binding Properties of Rat Androgen-Binding Protein	Franck Felden, Marie-Elise Martin, Jean-Louis Gueant, Claudine Benassayag, and Emmanuel A. Nunez	602
Stimulation of Rat Liver Microsomal cGMP-Inhibited cAMP Phosphodiesterase (PDE III) by Phospholipase C and D	Francesca Carpenedo and Maura Floreani	609
Stage-Specific Remodeling of the Mammary Gland Basement Membrane during Lactogenic Development	James C. Beck, Christine Lekutis, John Couchman, and Gordon Parry	616
Single Channel Behavior of Matrix Porin of <i>Escherichia coli</i>	Lukas K. Buehler and Jurg P. Rosenbusch	624

Cloning of Chicken hsp90 β : The Only Vertebrate hsp90 Insensitive to Heat Shock <i>Xia Meng, Valerie Jérôme, Jocelyne Devin, Etienne-Emile Baulieu, and Maria-Grazia Catelli</i>	630
Overlapping Binding Sites of Two Different Transcription Factors in the Promoter of the Human Gene for the Alzheimer Amyloid Precursor Protein <i>Peter Pollwein</i>	637
Cloning and Expression of the Major Allergen from Yellow Mustard Seeds, <i>Sin a I</i> <i>M. A. González de la Peña, M. Villalba, J. L. García-López, and R. Rodríguez</i>	648
Bretylium Differentiates between Distinct Signal Transducing Pathways in Human Lymphocytes <i>Carlo Pieri, Zsolt Bacsó, Rina Recchioni, Fausto Moroni, Margit Balázs, Rezső Gáspár, Jr., and Sándor Damjanovich</i>	654
Studies on the Regulatory Mechanisms of Interleukin-8 Gene Expression in Resting and IFN- γ -Treated Neutrophils: Evidence on the Capability of Staurosporine of Inducing the Production of Interleukin-8 by Human Neutrophils <i>Marco A. Cassatella, M. Aste, F. Calzetti, G. Constantin, I. Guasparri, M. Ceska, and F. Rossi</i>	660
The Ca ²⁺ -Sensitizing Component of Smooth Muscle Thin Filaments: Properties of Regulatory Factors That Interact with Caldesmon <i>K. Pritchard and S. B. Marston</i>	668
Identification of the Human <i>ltk</i> Gene Product in Placenta and Hematopoietic Cell Lines <i>Hiroyuki Kozutsumi, Hideo Toyoshima, Koichi Hagiwara, Akiko Furuya, Hiroyuki Mioh, Nobuo Hanai, Yoshio Yazaki, and Hisamaru Hirai</i>	674
ERRATUM	
Volume 188, Number 2, October 30, 1992: I. Tasaki and P. M. Byrne, "Rapid Structural Changes in Nerve Fibers Evoked by Electric Current Pulses," pp. 559-564	680

Volume 190, Number 3, February 15, 1993

Presence of a Serine Protease in the Complement-Activating Component of the Complement-Dependent Bactericidal Factor, RaRF, in Mouse Serum <i>Akiyoshi Takahashi, Yoshinaga Takayama, Hiromi Hatsuse, and Masaya Kawakami</i>	681
Protein Kinase C-Dependent Expression of Type I Transglutaminase mRNA in Ganglioside GQ _{1b} - and Calcium-Stimulated Human Keratinocytes <i>Yukihiro Yada, Renata R. Polakowska, Yukio Okano, and Yoshinori Nozawa</i>	688
Expression of Bone Morphogenetic Protein in Human Adenocarcinoma Cell Line <i>Setsuko Hatakeyama, Yuko Ohara-Nemoto, Seiko Kyakumoto, and Masanobu Satoh</i>	695
Human Melanoma Cells but Not Normal Melanocytes Express Vascular Endothelial Growth Factor Receptors <i>Hela Gitay-Goren, Ruth Halaban, and Gera Neufeld</i>	702
Microtubule-Associated Protein Interactions with Actin Filaments: Evidence for Differential Behavior of Neuronal MAP-2 and Tau in the Presence of Phospha- tidylinositol <i>Paul S. Yamauchi and Daniel L. Purich</i>	710

Wall Shear Stress Rather Than Shear Rate Regulates Cytoplasmic Ca^{2+} Responses to Flow in Vascular Endothelial Cells	<i>Joji Ando, Akira Ohtsuka, Risa Korenaga, Takashi Kawamura, and Akira Kamiya</i>	716
Expression of Extracellular Ligand-Binding Domain of Murine Guanylate Cyclase/Atrial Natriuretic Factor Receptor cDNA in <i>Escherichia coli</i>	<i>Kailash N. Pandey and Jyotshnabala Kanungo</i>	724
Molecular Cloning and Expression of the Mouse 105-kDa Gelatinase cDNA	<i>Hidekazu Tanaka, Kanji Hojo, Hiroshi Yoshida, Takayuki Yoshioka, and Kenji Sugita</i>	732
Solution Conformation of CCK9, a Cholecystokinin Analog	<i>L. Moroder, A. D'Ursi, D. Picone, P. Amodeo, and P. A. Temussi</i>	741
Characterization of the Factor E ₁ BF from a Rat Hepatoma That Modulates Ribosomal RNA Gene Transcription and Its Relationship to the Human Ku Auto-antigen	<i>Catherine M. Hoff and Samson T. Jacob</i>	747
Phosphorylation of an Acid-Soluble Nuclear Protein in Response to Catecholamine in Cultured Rat Cardiocytes	<i>J. J. Chen and C. C. Liew</i>	754
Evidence for a Polarized Efflux System for Peptides in the Apical Membrane of Caco-2 Cells	<i>Philip S. Burton, Robert A. Conradi, Allen R. Hilgers, and Norman F. H. Ho</i>	760
An AP-1 Enhancer Mediates TPA-Induced Transcriptional Activation of the Chicken Insulin-like Growth Factor I Gene	<i>Yoshitaka Kajimoto, Ryuzo Kawamori, Yutaka Umayahara, Norimichi Iwama, Eiichi Imano, Toyohiko Morishima, Yoshimitsu Yamasaki, and Takenobu Kamada</i>	767
Thyrotropin Receptor in Non-thyroid Tissues	<i>Toyoshi Endo, Makoto Ohno, Shuji Kotani, Kazuaki Gunji, and Toshimasa Onaya</i>	774
Induction of Cytochrome P450 2E1 during Chronic Ethanol Exposure Occurs via Transcription of the CYP 2E1 Gene When Blood Alcohol Concentrations Are High	<i>Thomas M. Badger, Jian Huang, Martin Ronis, and Charles K. Lumpkin</i>	780
α -Crystallin, a Molecular Chaperone, Forms a Stable Complex with Carbonic Anhydrase upon Heat Denaturation	<i>P. Vasantha Rao, Joseph Horwitz, and J. Samuel Zigler, Jr.</i>	786
Membrane Association of Leucyl-tRNA Synthetase during Leucine Starvation in <i>Escherichia coli</i>	<i>Rufus M. Williamson</i>	794
Genistein, a Tyrosine Kinase Inhibitor, Blocks the Cell Cycle Progression but Not Ca^{2+} Influx Induced by BAY K8644 in FRTL-5 Cells	<i>Toru Takano, Kaoru Takada, Hisato Tada, Sawa Nishiyama, and Nobuyuki Amino</i>	801
Chloroquine Allows to Distinguish between Hepatocyte Lysosomes and Sinusoidal Cell Lysosomes	<i>Robert Wattiaux, François Gentinne, Michel Jadot, Franz Dubois, and Simone Wattiaux-de Coninck</i>	808
Human Ryudocan Core Protein: Molecular Cloning and Characterization of the cDNA, and Chromosomal Localization of the Gene	<i>Tetsuhito Kojima, Johji Inazawa, Junki Takamatsu, Robert D. Rosenberg, and Hidehiko Saito</i>	814
Identification of the Fatty Acid Binding Site on Glutathione S-Transferase P by Immobilization to Fatty Acid-Linked Sepharose	<i>Jun Nishihira, Teruo Ishibashi, Masaharu Sakai, Shinzo Nishi, and Takashi Kumazaki</i>	823
Translocation of Ki-ras p21 between Membrane and Cytoplasm by smg GDS	<i>Motohiro Kawamura, Kozo Kaibuchi, Kiyohiko Kishi, and Yoshimi Takai</i>	832

Tyrosine Phosphorylation of Phospholipase C γ in <i>c-met</i> /HGF Receptor-Stimulated Hepatocytes: Comparison with HepG2 Hepatocarcinoma Cells	Yukio Okano, Kensaku Mizuno, Sinji Osada, Toshikazu Nakamura, and Yoshinori Nozawa	842
Identification of a Novel γ -Subunit from Bovine Brain GTP Binding Regulatory Proteins (Gi/o)	Hitoshi Sohma, Hideki Hashimoto, Norio Hiraike, Hiroshi Ohguro, and Toyoaki Akino	849
Isolation of Mitochondrial Cyclophilin from Bovine Heart	Toru Inoue, Yukuo Yoshida, Yoshitaka Isaka, and Kunio Tagawa	857
Congenitally Defective Aldosterone Biosynthesis in Humans: Inactivation of the P450 _{C18} Gene (<i>CYP11B2</i>) Due to Nucleotide Deletion in CMO I-Deficient Patients	Yasuhiro Mitsuuchi, Takeshi Kawamoto, Kaoru Miyahara, Stanley Ulick, D. Holmes Morton, Yasuhiro Naiki, Isao Kuribayashi, Katsumi Toda, Takayuki Hara, Tadao Orii, Keigo Yasuda, Kiyoshi Miura, Yasutake Yamamoto, Hiroo Imura, and Yutaka Shizuta	864
Expression of the <i>c-met</i> /Hepatocyte Growth Factor Receptor Gene during Rat Liver Regeneration Induced by Carbon Tetrachloride	Toshifumi Ito, Norio Hayashi, Masayoshi Horimoto, Yutaka Sasaki, Yuji Tanaka, Akira Kaneko, Hideyuki Fusamoto, and Takenobu Kamada	870
Molecular Cloning and Sequencing of a cDNA Encoding Mung Bean Cytochrome P450 (P450 _{C4H}) Possessing Cinnamate 4-Hydroxylase Activity	Masaharu Mizutani, Eric Ward, Joseph DiMaio, Daisaku Ohta, John Ryals, and Ryo Sato	875
Activation by Protein Synthesis Inhibitors of Glucose Transport into L6 Muscle Cells	Nancy Hayes, Chhabi Biswas, H. Vincent Strout, and Joel Berger	881
Cloning of Alternately Spliced mRNA Transcripts Coding for Variants of Ovine Testicular Follitropin Receptor Lacking the G Protein Coupling Domains	Haseena Khan, T. A. Yarney, and M. R. Sairam	888
The Influence of 1'-Methyl- and 1'-Ethylascorbigen on Metabolism of Arachidonic Acid in Murine Spleen Cells	Sergey Efimov, Valery Shevchenko, Igor Shchukin, and Maria Preobrazhenskaya	895
Functional Epidermal Growth Factor Receptor Localizes to the Postacrosomal Region of Human Spermatozoa	Ivan Damjanov, Davor Solter, and Barbara B. Knowles	901
Vitamin K ₃ Inhibits Growth of Human Hepatoma HepG2 Cells by Decreasing Activities of Both p34 ^{cdc2} Kinase and Phosphatase	Chung-Ching Juan and Felicia Y.-H. Wu	907
Modification of Cell Surfaces by Enzymatic Introduction of Special Sialic Acid Analogues	Renate E. Kosa, Reinhard Brossmer, and Hans-Jürgen Groß	914
Decreased Ubiquinone Levels in Tissues of Rats Deficient in Selenium	Surasi Vadhanavikit and Howard E. Ganther	921
cdc2 Kinase Phosphorylation of Desmin at Three Serine/Threonine Residues in the Amino-Terminal Head Domain	Masashi Kusubata, Yoichiro Matsuoka, Kunio Tsujimura, Hikaru Ito, Shoji Ando, Masayuki Kamijo, Hideyo Yasuda, Yoshiki Ohba, Eiichi Okumura, Takeo Kishimoto, and Masaki Inagaki	927
Effect of Inhibitors of Distinct Signaling Pathways on Neutrophil O ₂ ⁻ Generation in Response to Tumor Necrosis Factor- α , and Antibodies against CD18 and CD11a: Evidence for a Common and Unique Pattern of Sensitivity to Wortmannin and Protein Tyrosine Kinase Inhibitors	Carlo Laudanna, Filippo Rossi, and Giorgio Berton	935

Biochemical Genetics of Glycogenesis Type II in Brahman Cattle	
<i>H. A. Wisselaar, M. M. P. Hermans, W. J. Visser, M. A. Kroos, B. A. Oostra, W. Aspden, B. Harrison, D. J. S. Hetzel, A. J. J. Reuser, and R. D. Drinkwater</i>	941
Cloning and Sequence Analysis of Hypothalamic cDNA Encoding <i>Xenopus</i> Preproneuropeptide Y	
<i>Maarten C. H. M. van Riel, Rienk Tuinhof, Eric W. Roubos, and Gerard J. M. Martens</i>	948
Overcoming Multidrug Resistance in Human Tumor Cells Using Free and Liposomally Encapsulated Antisense Oligodeoxynucleotides	
<i>Alain R. Thierry, Aquilur Rahman, and Anatoly Dritschilo</i>	952
Insulin Stimulates the Degradation of IRS-1 in 3T3-L1 Adipocytes	
<i>K. Michael Rice, Marilyn A. Turnbow, and Charles W. Garner</i>	961
Tyrosine Kinase Inhibitors Suppress Agonist-Induced Contraction in Smooth Muscle	
<i>J. Di Salvo, A. Steusloff, L. Semenchuk, S. Satoh, K. Kolquist, and G. Pfitzer</i>	968
Potent Metabolic Stimulation of Septal Gray and Cerebral White Matter <i>in Vivo</i> by Intraventricular Endothelin and Nitric Oxide	
<i>Paul M. Gross, Donald F. Weaver, Dan S. Wainman, Ben H. Chew, Francisco J. Espinosa, and Sukriti Nag</i>	975
Critical Role of a Lipoyl Cofactor of the Dihydrolipoyl Acetyltransferase in the Binding and Enhanced Function of the Pyruvate Dehydrogenase Kinase	
<i>Gary A. Radke, Kazuo Ono, Sundari Ravindran, and Thomas E. Roche</i>	982
The Chimeric Receptor between Interleukin-2 Receptor β Chain and Interleukin-4 Receptor Transduces Interleukin-2 Signal	
<i>Kenji Izuhara, Atsushi Miyajima, and Nobuyuki Harada</i>	992
Thrombin Receptor Agonist Peptide Induction of Mitogenesis in CCL39 Cells	
<i>Christopher F. Reilly, Thomas M. Connolly, D. Mei Feng, Ruth F. Nutt, and Ernest J. Mayer</i>	1001
Differential Expression of Corticostatins/Defensins: Higher Level of CS-4 (NP-2) Transcripts Compared with CS-6 (NP-5) in Rabbit Lung	
<i>Linda C. Sadro, André Tremblay, Samuel Solomon, and Roger G. E. Palfree</i>	1009
Interaction of Actin with Positively Charged Phospholipids: A Monolayer Study	
<i>Robert Grimard, Pierre Tancrède, and Claude Gicquaud</i>	1017
Regulation of Fibronectin mRNA Expression in Primary Hepatocytes in Response to EGF and Phenobarbital	
<i>Jirí Aubrecht, Georg F. Kahl, and Martin W. Höhne</i>	1023
Biosynthesis and Secretion of Growth Factor Proteins by Kidney Cells from DES-Treated Syrian Hamsters	
<i>Mustapha A. Beleh, Robert W. Brueggemeier, George C. J. Chang, and Young C. Lin</i>	1029
Anti- <i>Candida</i> Activity of Cispentacin: The Active Transport by Amino Acid Permeases and Possible Mechanisms of Action	
<i>John O. Capobianco, Dorothy Zakula, Michael L. Coen, and Robert C. Goldman</i>	1037
Cloning of the Rat Insulin-like Growth Factor Binding Protein-5 Gene and DNA Sequence Analysis of Its Promoter Region	
<i>Xuguang Zhu, Nicholas Ling, and Shunichi Shimasaki</i>	1045
Structure of the Rat Insulin-like Growth Factor Binding Protein-4 Gene	
<i>Lin Gao, Nicholas Ling, and Shunichi Shimasaki</i>	1053
Major Contribution of the Basic Amino Acid Lysine at Position 11 to the Bioactivity of ACTH in Purified Isolated Rat Adrenocortical Cells	
<i>H. J. M. Goverde, G. J. Pesman, and A. G. H. Smals</i>	1060

- pH-Dependent Decarboxylation of 2-Amino-3-ketobutyrate, the Unstable Intermediate in the Threonine Dehydrogenase-Initiated Pathway for Threonine Utilization *John P. Marcus and Eugene E. Dekker* 1066
- Similarities between Alanine Dehydrogenase and the N-Terminal Part of Pyridine Nucleotide Transhydrogenase and Their Possible Implication in the Virulence Mechanism of *Mycobacterium tuberculosis* *D. Delforge, E. Depiereux, X. De Bolle, E. Feytmans, and J. Remacle* 1073
- Structural Similarities between Fructose-1,6-bisphosphatase and Inositol Monophosphatase *Yiping Zhang, Jiin-Yun Liang, and William N. Lipscomb* 1080
- Chicken and Mouse Focal Adhesion Kinases Are Similar in Structure at Their Amino Termini *Barbara Butler Devor, Xiaoe Zhang, Sheetal K. Patel, Thomas R. Polte, and Steven K. Hanks* 1084
- Complex I and Complex III of Mitochondria Have Common Inhibitors Acting as Ubiquinone Antagonists *Mauro Degli Esposti, Anna Ghelli, Massimo Crimi, Ernesto Estornell, Romana Fato, and Giorgio Lenaz* 1090
- Cadmium- and Zinc-Mediated Changes of the CA^{2+} -Dependent Endonuclease in Apoptosis *Ruth D. Lohmann and Detmar Beyersmann* 1097
- Molecular Cloning of a Novel Putative G Protein-Coupled Receptor Expressed in the Cardiovascular System *Hiroshi Okazaki, Nobukazu Ishizaka, Takeshi Sakurai, Kiyoshi Kurokawa, Katsutoshi Goto, Mamoru Kumada, and Yoh Takuwa* 1104
- Molecular Cloning of cDNA for Vacuolar Membrane Proton-Translocating Inorganic Pyrophosphatase in *Hordeum vulgare* *Yoshiyuki Tanaka, Kazuhiro Chiba, Miki Maeda, and Masayoshi Maeshima* 1110
- Smooth Muscle α -Actin Promoter Activity Is Induced by Serum Stimulation of Fibroblast Cells *Jae-Hong Kim, Pierre R. Bushel, and C. Chandra Kumar* 1115
- The Effect of Copper Ion on Arachidonic Acid Metabolism in the Porcine Corneal Epithelium *Ming T. Lin, Yui-hsi Wang, Yuh-ling Chen, and Wen-chang Chang* 1122
- Purification of Calreticulin-like Protein(s) from Spinach Leaves *Paola Menegazzi, Flavia Guzzo, Barbara Baldan, Paola Mariani, and Susan Treves* 1130
- Enhanced Glutathione S-Transferase 7-7 Expression in Rat Hepatic Cytosol Following Treatment with Pyrrole *Thomas Primiano, Jay Gandy, J. Lyndal York, and Raymond F. Novak* 1136
- Adenosine Diphosphate Ribulose in Human Erythrocytes: A New Metabolite with Membrane Binding Properties *Luisa Franco, Lucrezia Guida, Elena Zocchi, Luigi Silvestro, Umberto Benatti, and Antonio De Flora* 1143
- Desensitization of Canine Histamine H₂ Receptor Expressed in Chinese Hamster Ovary Cells *Yasushi Fukushima, Yoshitomo Oka, Hideki Katagiri, Toshihito Saitoh, Tomoichiro Asano, Hisamitsu Ishihara, Nobuyuki Matsuhashi, Tatsuhiko Kodama, Yoshi Yazaki, and Kentaro Sugano* 1149
- Evidence for an Indirect Effect of Nerve Growth Factor (NGF) on the ADP-Ribosylation of a 22-kDa rho-like Protein in PC12 Cells *Hideo Takahashi and Gordon Guroff* 1156
- Analysis of the Distribution of Protein Binding DNA Motives in the Vicinity of the 3'-Side Chicken α -Globin Enhancer *Félix Recillas Targa, Claudia V. de Moura Gallo, and Klaus Scherrer* 1163

- Cloning and Expression of cDNA Encoding Human Betacellulin, a New Member of
the EGF Family *Reiko Sada, Yoshitaka Ono, Yoshio Taniyama,
Yuen Shing, Judah Folkman, and Koichi Igarashi* 1173

ERRATUM

- Volume 187, Number 2, September 16, 1992: Yin Li, Hisayoshi Kobayashi,
Yuichi Hashimoto, and Shigeo Iwasaki, "Binding Selectivity of Rhizoxin,
Phomopsin A, Vinblastine, and Ansamitocin P-3 to Fungal Tubulins:
Differential Interactions of These Antimitotic Agents with Brain and
Fungal Tubulins," pp. 722-729 1180
- Author Index for Volume 190 1181

NOTICE

The Subject Index for Volume 190 will appear as part of a cumulative index for the
year 1993.